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* The particulars whereof (saith the Author) are here omitted, Sir Robert Moray and Dr. Wallis having by their more accurate Inquiries about Tides made them needless.

What power the Sea hath to produce or hasten Putrefaction in some Bodies, and to preserve others; as Wood, Cables, and others that are sunk under it?

Of the Power ascribed to the Sea to eject Dead Bodies, *Succinum, Ambergris?*

Of the shining of the Sea in the night?

What are the Medical vertues of the Sea, especially against *Hydrophobia*?

What is its vertue to Manure Land? And what are the Plants, that thrive best with Sea-water?

Some Considerations

Concerning the Parenchymous parts of the Body.

These were communicated by the Inquisitive Mr. Edmund King at the Instance of the Publisher, as follows;

The *Parenchymous* parts of the Body, are by *Anatomists* generally supposed to be in very many places wholly void of *Vessels*; designed chiefly to fill up Cavities and Interstices between the *Vessels*, and to bouldster up the same, and to convey them through the parts.

But having many years endeavoured to excarnate several parts of the Body, viz. the Liver, Lungs, Spleen, Kidneys &c. (not to name the *Placenta Uterina*, which seems to be *Parenchymous* too;) and being very desirous to make a *Scheme* of the *Vessels* of any of these, what ever they were, I fixt upon; I found, notwithstanding all my care to preserve the *Vessels*, when I was freeing them, as heedfully as I could; from the supposed *Parenchyma*, that in every breach, I made, either with my fingers or otherwise, all my endeavours were destructive to my purpose; and as, upon examination of those bits, much of which is called *Parenchyma*, I met in them more *Vessels*, than I had preserved in the parts whence they came: And though the Portion were never so small, yet my bare eye could make this discovery; much more could I, when assisted by a *Microscope*, perceive, I had destroyed more *Vessels*, than preserved, in despite of the exactest care, I was capable to use. And being not a little concern'd, that I should undertake to preserve the *Vessels* by such a Cause, as I saw plainly to be their destruction (were the part never so big, or never so small) I was both confounded and tired. For I saw (and so must any, that will attempt this work) in my endeavouring to preserve one *Vessel* of a traceable magnitude, I spoiled an infinite number of others less discernable, which were as truly *Vessels*, as the other, differing only in size and figure (as to appearance.) Then reviewing what mischief I had done in every place, quite through the whole Tract of my Fingers, Knife, &c. I began to think with myself, That it was not impossible for these parts to consist wholly of *Vessels* curiously wrought and interwoven (probably for more Uses, than is yet known;) And the consideration,

tion, which came into my mind, of a piece of fine Cloth (which consists of so many several minute Hairs, call'd *Wool*) was no discouragement to this opinion. Yet I durst not be so presumptuous as to indulge my self too much in it ; much less to venter presently to speak of a thing, which seem'd to contradict so many Learned Men's belief. But being restless, till I might receive more satisfaction in the thing, I iterated experiments over and over ; some of which prov'd so successfull to my apprehension, that I was encouraged in the years 1663. and 1664. to discourse of it to several very worthy Persons, as Mr. *Boyle*, Sir *William Petty*, Dr. *Williams*, Dr. *Lenthal*, Dr. *Jaspar Needham*, Dr. *Samson*, (who afterwards sent me a Letter from *France*, intimating the acquaintance, he had made with the Learned *Steno*, who hath since publisht something of the same Discovery) Mr. *Daniel Cox*, and Mr. *Samuel Parker*, &c. who doubtless cannot but remember, that then I related to them, I found much cause to believe, that that substance, commonly call'd *Parenchyma*, was in most, if not in all its *Parenchymous* parts, full of Vessels ; however it had been imagin'd by all, I could ever meet with, to consist in great part of a substance, in many places void of Vessels, designed for such uses, as are above mentioned.

Against which I have now further to alledge, 1. That I observe in a piece of *Muscular* Flesh (so call'd) either raw, roasted, or boyled, &c. that if I so far extend it, as to make it to be seen through, I can (assisting my Eye) perceive it full of Vessels, placed as thick as is possible to be imagin'd (the fat if there be any, being first removed) there appearing then nothing, but vessels, yet so as with a *Microscope* may be seen through, when they are extended. 2. That, if any one, as he is at dinner, take a piece of flesh, and begin either at the head or tail of a *Muscle*, he may divide it *in infinitum*, all along from head to tail, without breaking any thing of that, called Flesh, only these transverse *Fibres*, that seem to stitch them together, and (as I am apt to think) pass through the very Bodies of the smallest of them, and quite through the whole Muscle up the very Cutaneous porosities ; so that there is not one of these small *ducts*, that run *per longitudinem*, but 'tis furnish'd with a sufficient number of outlets, when need requires, though too minute to suffer any *alimentary* juice to pass tranversely (in a living Body) or any other liquor, when the Body is dead and cold. But to wave their use at present, and to return to what I was saying, Compress between the fingers this bit of flesh, and you shall find the Juice, especially if the Meat be Hot, to go before your fingers toward either end you please ; but if you compress both ends, you shall see it swell into the middle ; and again, if you press the middle, it will run out at both ends. But further, suppose a piece of flesh, called *Parenchyma*, as big, or as little as you please, in any part of the Body, and let me prick it with a Needle, where you shall appoint ; if you feel it, I presume you will acknowledge, a *Nerve*, or a *Fibrilla*, related to it, is touch'd : If you feel it not, I am sure some liquor either sanguineous or other, will follow the Needle : And from whence can that come, but out of Vessels : unless accidentally,

accidentally, as by a *Contusion*, &c. it be extravasated; in which case my Argument will not be injured, because the part is depraved, whereas I speak of the parts, as they are in their natural State.

To confirm and illustrate all which, I desire, that the following *familiar* Observations may be considered:

1. If a Horse, fat and fair to look on, without a hollow to be seen between his Muscles, be rid extreme hard, and into a great sweat, and then kept one day without water or moist meat, you shall see him look so thin in many places, as in the *muscular* parts, that you will hardly beleive it to be the same Horse, especially if he be (as the phrase is among Horse-masters) a *Nash* or *Wash-Horse*. The cause of which thinness will easily be granted to be only an exhaustion of Juice, expended out of the Blood, which did stuff out these Vessels. And whoever, that is used to ride hard, shall observe, how thick this foul Horse breaths, and at what a rate he will reek and sweat, will not much wonder at the alteration. But if the Horse be a hardy one, and used to be hard ridden, then you will see, that one days rest, and his belly full of good meat and drink, will in one day or two almost restore him to his former plight, the food being within that short space of time so distributed, that all the Vessels will be replenish'd again, as before. And the cleaner the Horse is, the sooner recruited, and the less sign of hard riding will appear. This seems to shew the facility, with which the Juice, called Blood, passeth; Which surely, if there were such a thing as a *Parenchyma*, might by several accidents (not difficult to mention) be so deprav'd in several parts of it, that it might lose its receptive faculty; than which it may be thought to have none of greater use, being supposed to be without Vessels.

2. Discourting sometimes with *Graasers* in the Country, about the Pasture of Cattle, I have been informed by them, that, if they buy any Old Beasts, Oxen, or Cows, to feed, they choose rather those that are as poor, as can be, so they be sound; because that, if they are pretty well in flesh, what they then add to them by a good pasture, though it make them both look and sell well, yet it will not make them eat so well, their flesh proving hard and very tough: Which some may suppose to be the age of *Parenchyma*; and so it is of that so called. But if those Beasts be old and extremely poor, then they feed very kindly, and will be not only very fat, but spend well, like young ones, and eat very tender.

Of which I take the reason (excluding a *Parenchyma* now) to be this. When an Oxe or a Cow is grown old, and in an indifferent plight as to his flesh (for so it is call'd) all those Vessels having been kept at that size for the most part, have contracted a tenseness and firmness, and their *fibers* less extensive, not so fitted for the reception of more unctuous particles to relax them; and that additional unctuous matter, which occasions fatness, is forced to seek new quarter, any where (often remote from Muscles) where it can be with least difficulty received; sometimes to one place, sometimes to another,

ther, as may be seen in Shambles: Whereas, if there were such a thing as a *Parenchyma*, that certainly would, like a hungry Sponge, immediately swell up in several parts, (which without much difficulty might be discover'd in dissection) and more eminently, where it should find the pores most patent: And in the dissection of such Muscles it would be very strange, not to find some, if not many, pieces of them in various shapes, to the great inconvenience of the parts, in which they are seated: Which yet I confess I could never find in any Muscle, unless it were where there had been a *Contusion*, or an *Impostume*, or the like. But according to my opinion of the *Parenchymous* parts, the reason, why the Flesh of a very lean Oxe or Cow, that hath got new Flesh in a good pasture, eats tenderer, seems to be this: That in a very lean Beast the Vessels destined for admitting and distributing the nourishing Juice, are so near contracted, and lye so close together, that, when once they are relax'd, by the fresh and unctuous nourishment, they extend every way in all *extensive* parts, until in a short time the whole Creature is, as it were, created a new, having got new flesh upon old bones: And the necessity of extreme extension makes all those parts, that are, as has been said, for the admission of nourishment, so thin and fine, that it will make the lean Beast, put into a rich pasture, eat young and tender: Whereas one of the same Age, that never was very poor, fed in the same pasture, shall eat hard and tough.

3. It has been observed, that Corpulent Persons in some Diseases, that seize on them, do fall away to wonder, not only in the Waist, but in the Arms, Legs, and Thighs; and the very Calves of the Legs have been observed so flaccid and loose, that one might wrap the skin about the bones. The reason whereof, according to the opinion deliver'd, may be easily rendred to be, A great Consumption of the Stock of Liquors, that in Health kept the Vessels turgid; Which Vessels I suppose to make up those Muscles. But when the Pores are obstructed, that the nourishment is hindred (which then also uses to be but sparingly administred) and sweats, either spontaneous, or forced, are large, there must needs be a great expence of those Liquors, the supply being but inconsiderable: which cannot but contract all these ducts of all sorts nearer together, and make them much less in themselves, merely from Exhaustion: Or, if there should be no sweats, the internal Heat spends the spirits, and dries up the Liquors; the consequence whereof may reasonably be presumed to be this Flaccidity of parts, and great and sudden Change, made in them; not that there is need of any *Parenchyma* to fill up these Muscles, considering what hath been said. Mean while, I humbly conceive, that if it be in any part of a Muscle, their Ingenuity, that plead for it, will put them upon some experiments, to bring it to Ocular Demonstration, either in a Living or Dead Muscle, any kind of flesh, raw, roasted, boyl'd, or in what they can best make it out. And when I shall be convinc'd of an Errour in what I have discoursed, I shall beg pardon for giving the Occasion of the trouble of that Experiment, which shall prove to a

Parenchyma in any Muscle ; and think my time well spent in receiving a full satisfaction of the ungroundedness of my opinion ; and readily submit to the Author , with a grateful acknowledgement of my Obligation to any one, that shall rectifie me in my mistake , if it be one.

Observables

Touching Petrification.

THOUGH much hath been already said and written of *Petrification* , yet 'tis conceived , that all that comes so far short of a competent stock for the composing of a perfect *History of Petrification* , that the incompleteness thereof ought to awaken the more diligent attention of the Curious, and to call in their aid for Additions , thereby so to increase and to complete the *Materials* for that work , that it may the better serve to clear and make out the Cause of that Transmutation. And that the rather, because if it lay in the power of humane Skill (by the knowledge of *Nature's* works) to raise *Petrification* , or to allay , or prevent it , or to order and direct it (which perchance in time might be attained the said way) much use might be made of this Art ; especially if it could be made applicable to hinder the Generation of the Stone and Gravel in humane Bodies , or to dissolve the Stone , where 'tis formed ; besides other valuable Uses , that might be excogitated.

Upon this Consideration, care *is*, and further *will be* taken in these Papers, to record , among other Observables of Nature , what shall be communicated of this kind of *Change*.

In *Numb.* 1. 2. and 5. several Relations have been made belonging to this Argument. Much of it, together with considerable Reflections may be seen in Mr. *Boyle's Essay of Firmness* : In *Helmont de Lithiasi*, where, among other remarques , is recited the Testimony of *Paracelsus* , of a *Petrified Child* seen at *Paris* , and by the Owner used for a *Whetstone* : In *Deusingius's Historia Infantis in Abdomine inventi, & in duritiem lapideam conversi* : In Mr. *Hook's Micrography*, and in others. To omit now , what has been related (but perhaps not well enough attested) by Authors , concerning the stupendious Petrifications of whole Companies of Men, and Troops of Cattle ; by *Aventinus* lib. 7. *Annal. Bojorum* ; by *Purchas* in his *Pilgrimage* p. 426. in fol. printed at *London* 1614. and, (of a Troop of *Spanish* Horsemen) by *Jos. Acosta* lib. 3. c. 9.

To all which , the Curious Dr. *Beale* now adds a Narrative of a Stone, not long since taken out of the Womb of a Woman of his neighbourhood neer *Trent* in *Somersetshire* , by incision , and afterwar'ds perfectly cured, though she had born the Stone with extreme torments for 8. or 9. years. The operation he relates to have been made in *Easter* last ; after which time , he affirms to have seen the Stone , and weigh'd it in Gold-Scales , where it wanted somewhat of four Ounces , but had lost of the weight, it formerly had ,
being